UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/640,747	08/14/2003	William W. Lu	100.529US01	9204

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EXAMINER
OSBORNE, LUKE R

ART UNIT	PAPER NUMBER
2123	

NOTIFICATION DATE	DELIVERY MODE
01/09/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@fogglaw.com

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/640,747	LU ET AL.
	Examiner	**Art Unit**	
	Luke Osborne	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>22 October 2007</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-22</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-22</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All   b) ☐ Some * c) ☐ None of:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____.

        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Status

1.   Claims 1-22 are pending in the instant application.

Claims 1-22 stand rejected.

Applicants' arguments submitted 10/22/2007 have been fully considered, Examiners response is as follows.

Response to Arguments

2.   Applicant's amendments have been considered with respect to the pending claims.

Regarding claims 13, 14, 15 Applicant's arguments amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.   This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the

various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4.   Claims 1, 2, 4, 5, 8, 9-16, 18, 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over ADC DSL Systems, Inc. ("Cable Calculator User's Manual", ADC DSL Systems, Inc. February 21, 2001), herein referred to as ADC, in view of Lechleider et al (US Patent 6,091,713).

As to Claims 1,13 and 15, ADC teaches: a method for modeling cable loss for a cable plant, the method comprising: identifying a service to be provided over the cable plant (page 3-1, Step 2, 2nd bullet; page 3-2, "Defining Type of Service", step 1; Figure 1, "Type of Service" menu), selectively entering at least one value corresponding to at least one parameter of the cable plant (page 3-2, "Defining Type of Service", step 2, a-d; page 3-4, "Changing Options"), on entering each of the at least one value, determining whether an estimated cable loss for the cable plant is capable of and displaying the estimated cable loss for the identified service and providing the service based on the entered values and an empirical model of cable loss that includes the number of bridge taps (page 3-2, "Defining Type of Service", step 2, d; page 5-2, Table 243).

As to Claims 2 and 16, ADC teaches: wherein determining the estimated cable loss comprises calculating the cable loss based on all of the entered at least one value (page 3-2, "Defining Type of Service", step 2, d).

As to Claims 4 and 18, ADC teaches: wherein determining the estimated cable loss comprises: calculating a first cable loss based on a cable gage and cable length for each span (page 5-2, "Calculate Cable Span Loss"), calculating a second cable loss associated with the number of bridge taps (page 5-2, "Number of Bridged Taps" and "Calculate Total Bridged Taps"), calculating a third cable loss associated with changes in gage between cables in the cable plant (page 5-2, "Number of Cable Gauge Changes" and "Calculate Total Change Loss"), and adding the first, second and third cable losses (page 5-2, "Calculate Total Span Loss").

As to Claims 8 and 22, ADC teaches: wherein calculating the third cable loss comprises assigning a cable loss value equal to the number of gage changes times a selected cable loss (page 5-2, "Number of Cable Gauge Changes" and "Calculate Total Change Loss").

As to Claims 9 and 14, ADC teaches: a method for modeling cable loss for a • cable plant, the method comprising: identifying a service to be provided over the cable plant (page 3-1, Step2, 2nd bullet; page 3-2, "Defining Type of Service", step 1; Figure 1, "Type of Service" menu); selectively entering a first set of values corresponding to the cable spans of the cable plant (Figure 1, "Span Cable Lengths" 26AWG-17AWG; page B-1, Descriptions for "17 AWG/1.2mm Span. Cable Length"-"26 AWG/.40mm Span Cable Length"); selectively entering a value corresponding to the bridge taps of the

cable plant (Figure 1, "No. of Bridge Taps"; page B-2, "No. of Bridged Taps"); and on entering each one of the first set values corresponding to cable spans and a second value corresponding to the bridge taps, calculating component loss values for one of the cable spans (page 5-2, "Calculate Cable Span Loss") and the bridge taps (page 5-2, "Calculate Total Bridged Taps"); combining the component loss values for the cable spans and the bridge taps to generate an estimated cable loss and determine if the identified service can be provided (page 5-2, "Calculate Total Span Loss"); and displaying the estimated cable loss for the cable plant providing the service based on the entered values and an empirical model of cable loss (Figure 1, "Total Circuit Parameters", "Loss").

As to Claim 10, ADC teaches: wherein identifying a service comprises identifying at least one of HDSL2 and HDSL4 (page 4-66; page 4-1, sentence 1).

As to Claim 11, ADC teaches: wherein displaying the estimated cable loss comprises displaying the estimated cable loss on the same screen of a graphical user interface used to selectively enter at least some of the first and second set of values (Figure 1; page 1-1, paragraph 2, sentence 1; page 3-2, "Defining Type of Service", step 2).

ADC does not expressly teach: (claims 1 and 15) the empirical model including data on losses affected by bridge tap placement and bridge tap length in the cable plant; (claims 4 and 18) the calculation of the second cable loss associated with at least one bridge tap based on at least one of bridge tap placement and length; (claims 5 and 19) wherein calculating the second cable loss comprises: determining entered length

and placement values for the bridge tap; and calculating the second cable loss using a formula based on at least one of length and placement of the bridge tap; (claim 9) entering a "set" of values corresponding to the bridge taps; (claim 12) wherein calculating the component loss value for the bridge tap comprises selecting a formula based on the length of the bridge tap .

Lechleider et al teaches that the transmission characteristics of a subscriber loop where ADSL may be deployed depends on the length of the copper line, its gauge, quality of splices, integrity of shielding, load coils, impedance miss-matches, interference and also the presence of bridge taps, wherein the injection of ingress noise, distortion and echo occurs at locations of these bridged taps on the subscriber loop, wherein these factors limit the data transfer or information rate at which a subscriber may be connected to a broadband service provider over the subscriber loop and are a major cause of connection problems subscribers currently face in making data connections via the public switched telephone network (column 1, line 57-column 2, line 13). Therefore, Lechleider et al teaches a method to estimate the performance of a broadband transmission, such as an ADSL transmission on a subscriber loop that enables the efficient determination of the probability of successfully deploying ADSL to a subscriber and determine the viability of deploying ADSL in entire areas (column 3, lines 50-59) wherein the locations and lengths of multiple bridge taps are used in the calculation of the electrical characteristics of the local subscriber loop using a formula based on the length and placement of the bridged taps(column 8, line 41-column 9, line 34).

ADC and Lechleider et al are analogous art since they are both directed to the characterization of the electrical properties of a subscriber loop to determine the viability of deploying a transmission service to an area.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the modeling of cable loss that includes the number of bridged taps as taught by ADC to further include the inclusion of information relating to the location and length of multiple bridged taps on the subscriber loop and calculating loss using a formula based on at least one of length and placement of a bridged tap as taught by Lechleider et al since Lechleider· et al teaches that the. transmission characteristics of a subscriber loop where ADSL may be deployed depends on the length of the copper line, its gauge, quality of splices, integrity of shielding, load coils, impedance miss-matches, interference and also the presence of bridge taps, wherein the injection of ingress noise, distortion and echo occurs at locations of these bridged taps on the subscriber loop, wherein these factors limit the data transfer or information rate at which a subscriber may be connected to a broadband service provider over the subscriber loop and are a major cause of connection problems subscribers currently face in making data connections via the public switched telephone network (column 1, line 57-column 2, line 13) and teaches a method to method to estimate the performance of a broadband transmission, such as an ADSL transmission on a subscriber loop that enables the efficient determination of the probability of successfully deploying ADSL to

a subscriber and determine the viability of deploying ADSL in entire areas (column 3, lines 50-59).

Applicant's Argue

The references as applied to claim 1 do not teach the limitation of "determining an estimated cable loss for the cable plant providing the service based on all of the entered at least one value and an empirical model of cable loss, the empirical model including data on losses affected by the bridge tap placement and bridge tap length in the cable plant". In particular, Lechleider appears to calculate the location of bridge taps based on testing to determine cable losses, which is not the claimed limitation of the empirical model to estimate the cable loss.

In contrast, Lechleider appears to, at most, determine the location and length of bridge taps based on information collected by modems 103 and 113 (Lechleider, Col. 8, lines 41 to Col. 9, line 60), and does not teach or suggest using an empirical model with this information to determine "whether an estimated cable loss for the cable plant is capable of providing the service based on all the entered at least one value." As a result, Applicants respectfully assert that none of the references, alone or in combination, teach or suggest the method of claim 1. Accordingly, withdrawal of the rejection of claim 1 is respectfully requested.

Examiners Response

The Examiner has considered applicant's arguments and found them unpersuasive. The following is further clarification of the references applied to claim 1. Lechleider in fact does teach an empirical model [Lechleider: Another object of the present invention is to provide a method and system for synthesizing a subscriber loop structure that approximates a set of measured loop characteristics (Column 3, lines 27-30)]. The "synthesized" subscriber loop structure is a model used to represent the system and that model is built with measured empirical data.

Applicant's allege that Lechlieder does not provide the empirical model. The Examiner reiterates that the "synthesized" subscriber loop is gathered at least in part from modems 103 and 113. These modems are real modems and the data collected is empirical. This data is then used for synthesizing the subscriber local loop 130 structure that approximates a set of measured loop characteristics. Lechleider then uses all of the data to estimate the ability of a subscriber loop (cable plant) to support broadband services.

5.   Claims 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over ADC and Lechleider et al.

ADC and Lechleider et al teach modeling cable loss for a cable plant and displaying the estimated cable loss for the cable plant.

ADC and Lechleider et al do not expressly teach wherein displaying the estimated cable loss comprises comparing the estimated cable loss with a threshold

value, using a first color when displaying the estimated cable loss above the threshold and a second color when displaying the estimated cable loss below the threshold.

However, Examiner takes Official Notice that it is known in the art to compare a value to a threshold value, to display a value of data above a threshold value with a first color and to display a value of data below a threshold value with a second color (US Patent 6,822,302: Figure 6 and description, column 8, lines 6-12; US Patent 5,825,284: column 2, lines 55-59, column 13, line 66-column 14, line 4; US Patent 5512823: column 3, lines 17-22; US Patent Application Publication 2002/0115046: claim 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the display of the estimated cable loss for the cable plant as taught by ADC and Lechleider et al to compare and display the estimated cable loss with a threshold value, using a first color when displaying the estimated cable loss above the threshold and a second color when displaying the estimated cable loss below the threshold since Examiner takes Official Notice that it is well known in the art to display data values using colors to show that they are above or below threshold values.

6.   Claims 6, 7, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over ADC in view of Lechleider as applied to claim 4 above, and further in view of Official Notice.

Regarding claim 6, ADC in view of Lechleider teaches the method of claim 4, wherein calculating the second cable loss comprises, taking into account bridge taps of various placements and lengths as noted above in the rejection of claim 4.

ADC in view of Lechleider does not expressly teach that

for bridge taps of greater than a selected length, calculating a cable loss bases solely on the placement of the bridge tap; and

for bridge taps less than the selected length, calculating a cable loss based on the placement and the length of the bridge tap.

Official notice is taken that the selection of a length of the bridge tap and the effect on the calculation therein being based on a bridge tap or the bridge tap and the length of the tap was well known at the time the invention was made.

As evidence of this fact the Examiner presents the definition of "Bridge" from Newton's Telecom Dictionary. "Imagine bridging as a connecting a phone at a right angle. When you do that, you've made what know as a "bridged tap". The first thing to know about bridging is that bridging causes the electrical current coming down the line to lose power. How much? That typically depends on the distance from the bridged tap to the phone. A few feet, and there's no significant loss. But that bridged tap can also be thousands of feet."

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to realize that the length of the bridge tap may have little effect and then not used in the calculation or have a significant impact.

The suggestion / motivation to do so would have been to make the calculation efficient since there is a varying impact from the length of the bridged tap.

Claim 20 contains similar limitations as claim 6 thus is rejected for the same reasons.

7.   Regarding claim 7, ADC in view of Lechleider teaches the method of claim 4, wherein calculating the second cable loss comprises, taking into account bridge taps of various placements and lengths as noted above in the rejection of claim 4.

ADC in view of Lechleider does not expressly teach

Assigning a fixed cable loss for a bridge tap of unknown position.

Official notice is taken that the use of default (fixed) cable loss for a bridged tap of unknown position was well known at the time the invention was made.

As evidence of this fact the Examiner presents the definition of "Bridge" from Newton's Telecom Dictionary. "Telephone companies typically will install ISDN BRI circuits with up to six bridged taps"

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a default (fixed) rule of thumb number to take into account bridged taps of unknown position.

The suggestion / motivation to do so would have been to make the calculation efficient by accounting for the impact of an unknown placement of a bridged tap.

Claim 21 contains similar limitations as claim 7 thus is rejected for the same reasons.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke Osborne whose telephone number is (571) 272-4027. The examiner can normally be reached on 8:00-4:30.
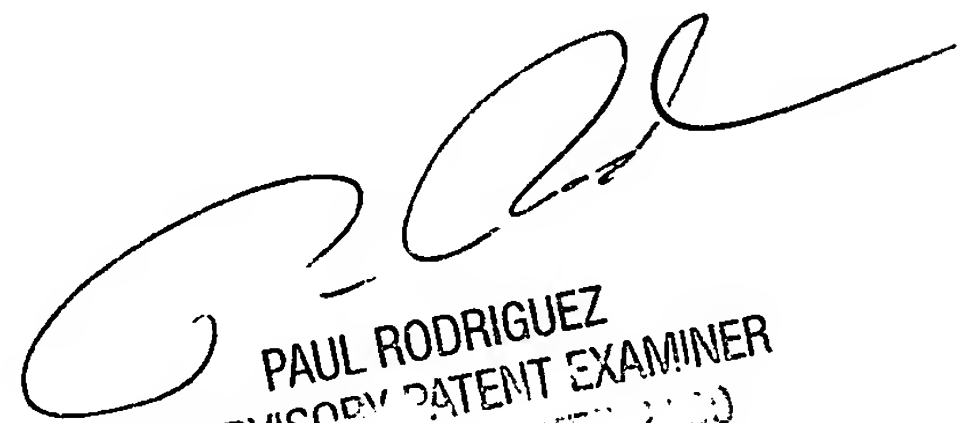
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul L. Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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LRO

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